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ABSTRACT

This philosophical and empirical investigation explored whether cognitive skills can be acquired in a workplace setting. A preliminary investigation looked at views of knowledge in liberal humanism where knowledge is a matter for individuals with transcendent minds with objects of knowledge being matters for which there is clear perceptual evidence. The investigation finds that this approach usually entails a dualist perspective that is problematic for contemporary life. The guild model conceives knowledge acquisition and validation in communities or "guilds." An empirical investigation adopted Bloom's Taxonomy as a basis for an interview questionnaire. A range of workplace supervisors, academic staff and students were interviewed and papers were written by academic staff in the various areas on the cognitive skills gained in the different settings. Factual knowledge gained and skills of application, analysis, synthesis, and evaluation in occupational settings emerged. The occupational settings were hotel catering management, nursing and health visitors, social work, applied chemistry, and life sciences. Overall the project showed empirical evidence of a range of cognitive skills acquired in workplace settings. (JB)

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COGNITIVE SKILLS IN WORKPLACE LEARNING?

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COGNITIVE SKILLS IN WORKPLACE LEARNING?

The Employment Department (ED) has funded a considerable amount of developmental research that looks at the affective or "core" skills acquired in a workplace setting. This project work has demonstrated, to the satisfaction of some HE academics, that affective or "core" skills can be gained at HE level, in a variety of workplaces. Thus, BA Business Studies students, for example, it is said learn skills such as the ability to work in a team, to communicate their views orally and in writing, and a variety of other so-called "core" skills whilst on placement.

Sceptics have suggested, however, that it is all very well to demonstrate that affective or "core" skills can be gained in a workplace setting, but the true business of academic study has to do with cognitive skills. This paper, then, seeks to address the question: *Can cognitive skills be acquired in a workplace setting?* It sets out to do so from two different perspectives: one philosophical and the other empirical.

THE PHILOSOPHICAL BACKGROUND

The above scepticism is difficult to sustain without a view of what these cognitive skills are, of what "knowledge" is. The latter question has a long philosophical pedigree, beginning at least with Socrates' quest in the Euthyphro, the Meno, and other dialogues for an account of what knowledge is, and what can be known.

Many subsequent philosophers, particularly since Descartes, in the 17th Century, have been principally concerned with attempting to answer the sceptic, who doubts or denies that knowledge is possible at all. Descartes, himself, famously doubted all that his senses told him - that he was sitting by the fire, that he saw what was in front of his eyes - and sought the certainty provided by God and mathematics (that 1 + 1 = 2, he argued, one cannot possibly doubt). After Descartes, the solutions to the problems of scepticism have been many and varied - from Kant's transcendental arguments (for example, the existence of the external world is necessary for self consciousness; I have self consciousness, therefore the external world exists) through to verificationist foundationalism (I know what can be verified by evidence).

In some contemporary analytical philosophical circles, Plato's question has been re-phrased in the following way: "Under what conditions can we truthfully claim of **s** that **s** knows that **p** (where **s** is some knowing subject, and **p** some proposition, eg 'it is raining'). The most popular candidate for such conditions was the following: "**S** knows that **p** (if and only if) **p** is true, **s** believes that **p** and **s** has good grounds or evidence for his (sic) belief. Ingenious analytical philosophers - the most famous of whom was Gettier - then proposed a series of counter- examples to this thesis, counter examples to the counter example, and the thesis was duly refined. (These took, for example, the following form: Jones is justified in believing (a) that Smith owns a Ford - Smith has always owned a

Ford; Jones has seen him driving about in one. He infers (b) either Smith owns a Ford or Brown is in Barcelona. Jones is justified in believing (b) but he does not know that Brown is in Barcelona.)

Knowledge construction and validation, on the above analytical, philosophical view, have the following features: they are matters for individuals, acting in isolation from others, and acting (as) transcendent minds; the objects of knowledge (that it is raining, for example) tend to be matters for which there can be clear cut perceptual evidence. This view about knowledge is associated with liberal humanist approaches to education.

1.1 LIBERAL HUMANISM

One strand of liberal-humanist thinking about education sees its purpose to be, in the words of Newman: "to open the mind, to correct it, to refine it, to enable it to know, and to digest, master, rule and use its knowledge, to give it power over its own faculties". (Newman, 1976) A liberal education, according to Newman, should equip the student with "an inquiring mind" that seeks the truth. As Ron Barnett has pointed out (Barnett, 1990), there are clear resonances with the Platonic idea of the mind ascending upward, beyond the epiphenomenal shadows of the cave, into the uncontaminated world of "reality" outside. (Although Newman allowed a rather wider range of people than Plato would have permitted to have access to this latter domain) Newman, as Barnett points out, uses the Platonic metaphor: the effect of opening the mind would be "like a prisoner, who having been accustomed to wear manacles or fetters, suddenly finds his arms and legs set free" (Barnett, 1990).

It is important to point out that Plato, himself, conceived education broadly: it involved physical activities - sports and games - as well as more contemplative subjects. However, the contemporary division between "education" - the province of the intellectual élite and the Education Department - and "training" - the purview of the Employment Department and the masses - has its precursor in Plato's division between "education" for those who will become the philosopher-kings, and training for the military, the tradespeople, the artisans and the merchants. A certain view of cognitive skills, similarly, relegates workplace, and other learning which takes place outside the schools and universities, to the domain of training and not education.

In the 17th and 18th Centuries the "physical" aspects of education were devalued further alongside the Enlightenment commitment to universal, context-independent knowledge and reason. On the epistemological perspective of many 17th and 18th Century philosophers, the interests, motives and values of a subject's knowledge are irrelevant when it comes to validating any particular claim to know. The knowing subject is reduced, on the perspective, to the "S" of "S knows that P". "S", it is

assumed, can be anyone in any location. It is logical, then, for "S" to be a transcendent mind. The body is consequently wholly irrelevant to knowledge construction and validation. Any cognitive activity which is not purely mental, therefore, is denigrated.

There are resonances of the 18th Century view in much contemporary thinking about the point and purpose of higher education. The view that the "mind" is superior to the body appears in educational thinking that privileges mental, intellectual activity over the skills of communication, and computer literacy, for example. It appears in the view that higher education is concerned exclusively with high level conceptual skills and not with practical skills. The view is obviously held in very different forms in the multifarious subject areas represented in HE. It can be expressed in such a way, however, as to denigrate any cognitive skills associated with the practical application of pure concepts.

Many feminists have pointed to the implicit association of masculinity with the rational, mental side of the dualism and femininity with the bodily domain. There is a parallel devaluing at work in the educational case: the dualism effectively denies many activities, including workplace learning, and people - both men and women - a place in the domain of higher education.

This above view of knowledge and of the nature of the knowing subject has been extensively criticised in recent writing. It is argued that knowers, contrary to the assumption, are not transcendent minds, and that their locations, their interests and their values play a very major role in knowledge construction and validation (see, for example, Harding, 1986).

It is argued, further, by Foucault, Rorty, Derrida and others that foundationalism - the attempt to place knowledge on secure foundations - cannot be sustained, and that mind/body dualism is part and parcel of that discredited theory.

Another version of the 18th Century view appears in the thinking of those right-wing educationalists, such as Kenneth Minogue, writing in the '70s, who advocated a dualism of knowledges - those he thought were appropriate for study in universities, and those "practical forms" which operated outside that privileged domain. Minogue's dualism of subjects appropriate for academic study and those he regarded as lying outside that realm reflects the Cartesian dualism of mind and body, and the classical liberal educationalist argument that higher education pertains to the domain of the mind and not the body. Such educational dualisms, like the foundationalism from which they stem, are very difficult to sustain, anyway: one aspect of Minogue's characterisation of it as not being concerned with practical matters is hardly sustainable today, and few nowadays would concur with his outlawing of social policy from the

academic terrain (though a greater number might be sceptical about the legitimacy of journalism - another of his examples - to an academic calling).

Such dualist perspectives are undermined from another direction: in the highly technologically-based society in which we now live, it is increasingly implausible to attempt to partition off "seats of learning" from other arenas. Learning takes place in a whole range of settings, via CD Roms, videos, as well as books and papers. The view that academic learning must be located in one type of institution, in the contemporary "post modern" world, borders on the absurd.

1.2 THE GUILD MODEL

One alternative model of knowledge is not open to the above criticisms. This conceives knowledge acquisition and validation as occurring in communities or "guilds". On this alternative model of knowledge, the "knowing subject" is no longer a transcendent mind but it incorporates bodily subjects or groups of individuals and the social contexts in which these individuals or groups operate.

Cognitive processes, on this view, are not purely **mental** processes, and can incorporate a bodily dimension. Furthermore, the objects of knowledge are broadened to include non-propositional knowledge. Cognitive activities associated with workplace learning are more likely to be accommodated within this model of knowledge.

The guild idea has its roots in Plato and Aristotle, but in a different aspect of their thinking from the aforementioned one. According to Plato in the Gorgias, it is a pre-condition for engaging in rational enquiry that one should already possess and recognise certain moral virtues. A prior commitment to these virtues is required if enquiry is to proceed. In its Aristotelian dress, the knower is transformed in the process of gaining knowledge in the way that a craft worker is changed as he gains understanding and skill in the practice of his craft. Enquiry into the nature of what is good is conceived by Aristotle by analogy with the process of becoming a master craftsman. In Medieval times, Dante, as poet/philosopher, was, in virtue of his special craft skills, admitted to membership of one of the guilds at Florence, the apothecaries, the guild for the crafts of book learning. Aristotle himself described the coming to terms with the discipline of philosophy itself, one of the least "vocational" of subjects, on the model of a craft.

In this alternative tradition, knowledge construction and validation can take place in communities, and the range of types of cognitive skills can be broader than the "**p**" of **x** knows that **p**.

Of course, it is possible to reject the dualist approach, whilst maintaining a scepticism about the legitimacy of work-based learning to count as academic learning at HE level. The scepticism we have encountered amongst many academics, however, we would argue, stems from an inappropriate dualism about academic and other areas of study.

1.3 AN EMPIRICAL APPROACH

The remainder of this paper seeks to address the sceptics' question from a different direction. It describes the results, so far, from an ED-funded project at the University of North London that investigated the question: *Can knowledges or cognitive skills be acquired in a workplace setting?* Initial investigations suggested the need for a broad framework questionnaire, separating out possible cognitive skills and investigating, by interview, whether or not these were gained in a workplace setting. We settled on an amended version of Bloom's Taxonomy as a basis for our questionnaire. Our taxonomy divided cognitive skills and abilities as follows:

CATEGORIES OF COGNITIVE SKILLS

1. KNOWLEDGE OF FACTS

This level of learning relates to knowledge of such things as:

- specific facts (dates, events & places)
- definitions
- classifications
- criteria
- methods of organising data
- principles
- theories

2. INTERPRETING FACTUAL KNOWLEDGE

You can INTERPRET the facts you know both for yourself and others

3. APPLYING KNOWLEDGE

You may be able to go further because you can APPLY what you know to REAL situations

4. ANALYSING KNOWLEDGE

You may be able to analyse the knowledge you have ie break it up into its constituent parts in a variety of ways purposes

5. SYNTHESISING KNOWLEDGE

A synthesis of knowledge can be shown if you are able to bring together different elements of what you know and PRESENT them in a new way, or CREATE a different framework for them, or PRODUCE a new idea or solution

6. EVALUATING KNOWLEDGE

Here you are in a position to EVALUATE or JUDGE what you know by applying different kinds of criteria

Subject areas singled out for investigation, in the first year of the project, included: Hotel & Catering Management, Applied Chemistry & Life Sciences, Nursing & Health Visiting and Social Work. The project used a sample of case study material from workplace learning accredited at HE level at the University of North London.

A range of workplace supervisors, academic staff and students were interviewed, and papers were written, by academic staff in the various areas, on the cognitive skills gained in the different settings.

Some examples of the results are summarised below:

Under the heading **Knowledge of Facts** the following emerged:

Hotel & Catering Management (BTEC)

In order to function within the organisation, it is important that the student is aware of the different job titles, functions and responsibilities of individuals within the organisational structure. The student may well be moved around different departments within a hotel on a rapid basis to give maximum exposure. This requires the student to assimilate a large body of information in a short time.

Nursing & Health Visitors (Professional Diploma)

A large body of knowledge will already have been acquired previously as a Registered General Nurse but this will be extended and enhanced, both in college and on placement. Broad areas include:

- Developmental changes, basic principles of genetics, human growth and factors affecting critical periods and experiences throughout life
- Knowledge and theories about interpersonal interaction, behaviour and approaches to counselling
- Knowledge of management theory and practice as it relates to health care, nationally and locally
- Legal aspects of professional practice
- Knowledge of basic teaching methods as they apply to clients' needs eg the implications of health and social factors on learning and how best to affect a positive change.

Social Work (Diploma in Social Work & BSc in Applied Social Science)

"Qualifying social workers need a rigorous approach to the acquisition of knowledge. They must become confident in identifying, locating and using relevant source material - factual, general, specialist and research" (Ref: CCETSW, Paper 30, 2.1, p14)

Recording of specific facts, dates, events and places is important for all branches of social work but the degree of precision required varies according to the type of social work undertaken. Similarly, the importance of the accuracy of the definition depends on the circumstances. For example, working on a child protection case in a statutory agency, would require specific recording of information that would stand up in legal proceedings. In contrast, working in a mental health drop-in centre for the homeless, the most complex requirement would be the details needed to advocate effectively on behalf of the service user in obtaining the provision of services.

Applied Chemistry & Life Sciences (Diploma)

Some examples of the sorts of "knowledges" which may be enhanced in the placement year, for a Life Sciences and Applied Chemistry student, are the following:

- To demonstrate a sound knowledge of the theory behind selected techniques used in determining the molecular structures of organic, organometallic and coordination compounds.
- Experience in the techniques which can be used to gather information about these factors
- Knowledge of the criteria affecting the choice and design of experimental methods

Applied Chemistry & Life Sciences (Diploma)

On the whole, students, staff and others in the science areas did not separate the various skills into the categories of: comprehension, translation, interpretation and extrapolation. However, a few examples given were:

- To extend the students' understanding of thermodynamics and kinetics, and to enable reactors and multiple reaction systems to be appreciated
- Ability to explain the ways in which biochemical techniques and methodology can be applied to real life situations

It would, therefore, be of particular benefit to receive feedback from others, in the Science area, who may or may not agree with this view.

From questions about **Application** we obtained the following information:

Hotel & Catering Management (BTEC)

Students may be requested to apply marketing principles within the placement establishment such as market segmentation of customer base from guest records or competitor analysis in respect of local competition.

One student was given responsibility for producing a target level of turnover for a specific area of unused space. He had a small number of staff and a budget within which to work. The room was without natural light. He designed a variety of interior scenarios, set up a customer data base and sold the space successfully for weddings, conferences and parties. This involved him in the complete marketing planning process from beginning to end. It also involved him in the analysis and evaluation of failures and difficulties along the way. Many elements of the college syllabus such as operational management, staff management, marketing and financial planning were applied in a placement setting.

Nursing & Health Visitors (Professional Diploma)

There is considerable scope within practice for students to apply theory to their work. For instance, students are required to use models of care in their practice such as Orem's Self Care or Clark's Health Visiting model.

The students' competence to apply theories of nursing and models of care are assessed by the CPTs and assessors, as well as their coursework. They are expected to link theoretical understanding and philosophical concerns to practice by presenting a detailed account of the care given to a chosen client/patient. Students are required to submit a professional practice study at the end of Semester B. This is a written study of their work with an individual or family which shows their involvement in delivering appropriate professional care. This part of the placement experience can also be shared by a peer group presentation as described under "Assessment Practice".

Questions on **Analysis** revealed:

Hotel & Catering Management (BTEC)

A student may experience a situation in which individuals are poorly motivated. He/she might observe labour turnover, conflict, stress and lack of commitment to work amongst colleagues. Analytical skills could be developed in attempting to identify courses of action and so work towards a possible "solution".

The following example illustrates this:

Student A is working for a 4 star city centre hotel which, like many others, is experiencing severe financial difficulties due to low occupancy levels. This has resulted in a number of changes to the organisation of work within the hotel. There is much discussion in the Human Resource Management arena about the advantages of a flexible workforce. The hotel has chosen to introduce flexibility of movement around food outlets for food service staff. The staff are no longer employed in either the lounge bar, à la carte restaurant, carvery or coffee shop but may be called upon to work wherever they are needed. The policy extends to supervisory level staff. A small number of core staff are retained in each area.

The student has chosen to analyse the impact of this and other recessionary human resource management policies upon service standards and morale. This has enabled the student to examine a live management of change situation. Not surprisingly her analysis showed a mixed response to the changes and their impact upon perceptions of career development, security and standards of service. She was able to develop an informed and analytical judgment about the issues raised and was able to demonstrate a high degree of cognitive learning through the experience.

Writing a reflective report requires analytical skills and is a requirement for all students on placement.

Nursing & Health Visitors (Professional Diploma)

In this subject area there is ample opportunity for developing analytical skills.

The whole process of client assessment involves close observation and understanding of many complex elements which then need to be analysed in order to arrive at an appropriate care plan.

The reflective report is another tool for developing and demonstrating analytical skills. Objectives are discussed, analysed and modified in the light of experience and later evaluated.

Both the individualised practice report and the community profile demand the demonstration of analytical skills.

Prioritising caseload and time management require advanced analytical skills.

Social Work (Diploma in Social Work & BSc in Applied Social Science)

In social work, similar opportunities apply for analysis to those described in Nursing & Health Visitors: client assessment and reflective report.

The analytical framework for social work problems draws a hypothesis from the evidence, tests this, revises the hypothesis in the light of additional data and then formulates a plan of action.

For example, in the case of truancy, the student would need to analyse the pupil's relationship with:

- The school
- Her/his peer group
- Siblings
- Parents
- Parent's relationship with each other
- Parent's relationship with the pupil and other siblings
- The pupil's performance at school

Once the key elements of a case have been identified, the relationship between them must be examined. In the previous case, for example, it may be that parents have high expectations of all their children and this particular child feels unable to live up to them. In this case, the student might hypothesise that the parents had unrealistic expectations of the child's school work and that the child's response to this was to opt out, making the school feel that she/he was not really worth helping. The next stage would be for the student to test the hypothesis by gathering and analysing further evidence to refute or confirm that it was correct. Once the hypothesis is confirmed as a possibility, the student would have to construct a suitable form of intervention. All students interviewed were able to give examples of cases where they had had to identify the key constituent elements of a case in order to make an assessment.

All forms of social work intervention have certain organising principles which inform action. In the above case, the student might be looking at a system which needs to be conceptualised as composed of interrelated parts all affecting each other. The points of change that might be identified are:

- The parent's attitudes
- The school's perception of the child
- The child's self esteem

Here, the student would be working in practice using two different frameworks of analysis simultaneously:

- The broader framework for analysing social work problems:
  - Drawing an hypothesis from the evidence
  - Collecting additional data to test it
  - Revising the hypothesis in the light of new evidence
  - Formulating a plan for social work intervention
- The specific framework needed for the chosen intervention

In this case, the method chosen for the intervention would be family therapy based on a systems approach rather than individual counselling.

Under **Synthesis** we obtained the following:

Hotel & Catering Management (BTEC)

In this subject area, it was difficult to find many examples of synthesis. If the students were allowed access to relevant company data, there would be increased opportunity.

A student might be able, having analysed levels of promotional activity within a particular area, to develop a plan for introduction of additional promotional effort. They could demonstrate synthesis if they devised a new, imaginative approach.

Nursing & Health Visitors (Professional Diploma)

In contrast to the above example, in this subject area, all students are expected to show skills of synthesis in their work by producing an original communication and a plan or proposed set of operations.

Each care plan should be the synthesis of elements derived from client assessment. The health promotion initiative, carried out and written up by students during practice, could well contain evidence of synthesis, particularly in the recommendation section.

Social Work (Diploma in Social Work & BSc in Applied Social Science)

The placement report should contain evidence of synthesis derived from individually designed care plans or original agency or outreach work. Clearly, there is ample scope for developing synthesis in social work.

One student thought that some of her outreach work could be described as a "unique, original, initiative" and so be classified as synthesis of knowledge. Several students said that they were sometimes given clients where the staff had "failed". Since the students had more time and "open" expectations, they were quite often successful - they were less

caught up in the usual power situation. As students are supported by a practice teacher, they can be vulnerable and perhaps more "honest" with clients rather than being caught up in the power dynamics of the situation. This strength in admitting openly that they did **not** have all the answers emerged several times in different situations as the following quotes indicate:

"If all the answers were already there, there wouldn't be much point taking this course, would there?"

"I don't mind 'failing' as long as I think I have tried my best."

There was also a refreshing idealism expressed by some students:

"I don't want any job in any old team, I want to work with a motivated team. How else can I remain enthusiastic and really care?"

The ability to recall a personal experience effectively is a key element in social work training. One of the learning tools which develops this capacity is process recording. This consists of:

- Writing down everything that is said in an interview with a service user
- Noting simultaneously the non-verbal communication
- Producing an analysis of the interaction, integrating process and content

A sophisticated organisation of ideas and an effective use of language is necessary in producing a Social Enquiry Report for use in court. In undertaking this task, the student is required to assess the personal history and current circumstances of the alleged offender, and draw conclusions about the relative influence of events. For example, in the case of a juvenile caught shoplifting, the offence would be seen in the context of family difficulties which may influence sentencing. It is part of the task of writing such a report to make a judgement about the appropriate penalty for the offence.

Once a student has gathered all the necessary evidence to support a particular form of action, the next step will be to construct a plan in conjunction with other professionals concerned. For example, in child protection, a specific time limited plan would be formulated following a case conference. The discussion would focus on how the children are going to be protected, and by whom. This would involve consideration of both:

- Statutory responsibilities
- Parent's rights
- Recognition that the child's interests are paramount

Thus the process involves synthesising different elements of information.

Finally, questions about **Evaluation** revealed:

Hotel & Catering Management (BTEC)

It might be possible for the student to trace the introduction of a policy decision through several departments and evaluate its effectiveness. Students may observe difference standards of service or competence which could be the result of insufficient training. They are well placed to evaluate the effectiveness of induction and other specific training.

Students are encouraged to compare quality management policies with other organisations and leaders in the field. They can evaluate the effectiveness of the company's equal opportunities policy against actual practice.

They should be able to evaluate computerised information systems used in relation to the requirements of the establishment and other available systems outside.

They could conduct an environmental audit of the organisation in relation to the standards set by industry.

While there will clearly be more opportunities to develop synthesis, for students in placements which offer some managerial experience, some of the above examples could also be demonstrated where students have to work at the bottom end of the operation.

Nursing & Health Visitors (Professional Diploma)

Self evaluation is actively encouraged in students' practice and reflective reports. Their own aims and objectives are used as internal criteria.

For example, in the care of a patient with a leg ulcer, the individual goals of District Nursing intervention might be increased comfort for the patient and measurable improvement in the leg ulcer. Evaluation would involve measurement of the size of the leg ulcer and the patient's report on comfort and satisfaction with the District Nursing.

Evaluation of different methods of teaching is required as is evaluation of the individual client's progress, for example, post operation. The criteria for evaluation include the objectives set and whether or not these are met.

There exists a culture of standard setting and quality assurance within this profession. Students are, for example, expected to evaluate the service provided against standards from the best practice, informed by current research.

OVERALL CONCLUSION

The project, so far, has provided some empirical evidence, then, of a whole range of cognitive skills being acquired in workplace settings. In fact, the science supervisors and students were the least happy about separating out "knowledges" acquired into the various cognitive skills. They tended to want to locate almost all "knowledges" in the "knowledge of facts" category. This may, however, have been a bias in the particular people selected for interview.

We did not attempt, within the scope of a small project like this, to evaluate the **level** of skills acquired, and that is obviously a key issue if we wish to demonstrate that HE level cognitive skills can be acquired in a workplace setting. Moreover, although the project deliberately set out to analyse the provision of only one institution, two of the programmes - Nursing & Health Visiting and Social Work - are accredited by professional bodies, and all programmes at the University of North London are subject, from the days of the CNAA to the present day, to rigorous quality control procedures. The case studies, therefore, are typical examples of their kind.

Although, therefore, we have uncovered material in each category, students, on the whole, found the first two categories - gathering information and interpreting facts - far easier to understand and to give examples of, than the other categories. Many students did not feel that they understood, for example, what were the differences between "analysis" and "interpretation". Furthermore, some students felt that, although they understood what "evaluation" meant, they were not provided with much experience of carrying it out. In some cases, as well, some considerable explanation of the various categories was required before students and staff understood what was being talked about.

This paper has sought to offer two different kinds of argument - one philosophical and the other empirical - against scepticism about the possibility of cognitive skills being gained in a workplace setting.

BIBLIOGRAPHY

Ronald Barnett, **The Idea of Higher Education**, SRHE & Open University Press, 1990

Sandra Harding, **The Science Question in Feminism**, Ithaca, Cornell University Press, 1986

J H Newman, **The Idea of a University** , I T Kerr (ed), p118, 1976

Kenneth Minogue, **The Concept of a University**,

Alison Assiter & Cordelia Bryan, **Guidelines Draft 1: The Accreditation & Development of Cognitive Skills Acquired in the Workplace**, University of North London Press, 1993

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